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Final Report

Response Capacity During A Health Emergency— A Review of Selected Issues

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"Health security is as basic a right

of Americans as police and fire protection.

And in times of crisis such as this,

it is clear to all that health security

is synonymous with national security."

—Donna Shalala,
President, University of Miami
and former Secretary, Health and Human Services

Executive Summary

On December 15, 2000, Virginia Governor James S. Gilmore, III released the second annual report of the "Gilmore Commission" on terrorism response capabilities. His cover letter seemed prescient. "We are impelled by the stark realization that a terrorist attack on some level inside our borders is inevitable," he wrote, "and the United States must be ready."

The threat of a terrorist attack resulting in mass casualties is no longer theoretical. Neither is the use of biological weapons against civilian populations. Unfortunately, terrorism is not our only worry. This country and this state also face possible threats from the *unintentional* spread of disease—new diseases, re-emerging diseases we thought we had controlled, and familiar diseases such as malaria and tuberculosis that are developing resistance to antimicrobial treatments.

When introducing the Frist-Kennedy Public Health Threats and Emergency Act of 2000, Senator Edward Kennedy called new and re-emerging diseases, antibiotic-resistant microbes, and bioterrorism the "Three Horsemen of the Modern Apocalypse." He added:

> **"Today we face a world where deadly contagious diseases that erupt in one part of the world can be transported across the globe with the speed of a jet aircraft. The recent outbreak of West Nile Fever in the New York area is an ominous warning of future dangers. Diseases such as cholera, typhoid and pneumonia that we have fought for generations still claim millions of lives across the world and will pose increasing danger to this country in years to come. New plagues, like Ebola virus, Lassa Fever and others now unknown to science may one day invade our shores."**

Whether the disaster is a naturally occurring disease outbreak, a mass trauma event along the lines of the September 11 tragedy, a natural disaster, or the use of weapons of mass destruction by terrorists or conventional militaries, the first response to a health emergency will come from the local and state level.

Many experts and organizations have called for a more "robust" public health system in response to emerging bioterrorism threats. They note that the public health programs and activities needed to respond to a bioterrorism attack—disease surveillance, laboratory testing, risk communication, vaccine distribution, public education, environmental monitoring, and more—are the very programs public health uses quietly every day to create a safer and healthier nation.

How prepared is the public health and health care infrastructure to respond to a bioterrorism attack, a mass casualty event, or a significant disease outbreak? From a global perspective, the answer, according to at least one longtime, well-regarded observer, is unavoidable and unequivocal: As a global community, we are not prepared.

From a national perspective, the view of public health preparedness is less gloomy but still not encouraging. Last year, the Centers for Disease Control and Prevention asked itself, in response to a congressional inquiry, "is public health's infrastructure up to the task, prepared for the global health threats of the 21st century?" It concluded, "Unfortunately, the answer is no." A host of studies, expert pronouncements, assessments, field exercises, and real-world events support the CDC's conclusion.

The state of Washington is regarded among public health professionals as having a high-performing network of state, academic, and local public health agencies. When it comes to preparing for bioterrorism and other major disease outbreaks, Washington is ahead of most other states. The state, however, is part of the national infrastructure and shares both its strengths and its weaknesses.

In 2000, the Washington State Department of Health, as part of a joint Department of Justice and CDC nationwide effort, conducted a Public Health Emergency Preparedness Assessment. It asked the 39 counties to answer a series of questions based on the Draft Public Health Emergency Standards. "In general," DOH concluded, "Washington's local public health systems are not adequately prepared for a major biological emergency."

A survey of emergency departments at all hospitals in federal Region X—which includes Washington along Oregon, Idaho, and Alaska—attempted to assess whether hospitals are prepared to respond to chemical or biological attacks. Less than 20 percent had response plans in place and only 6 percent had enough physical resources to respond to a theoretical attack using the nerve gas Sarin. Slightly less than half had an isolated decontamination unit, while only 12 percent had supplied air-line respirators or self-contained breathing apparatuses. The researchers concluded that emergency departments are generally not prepared to respond to an attack using biological or chemical weapons.

One area of particular concern in Washington State is the surge capacity of the health care system. Historically, Washington has had a highly efficient health care delivery system with little excess capacity during times of normal utilization. In recent years, cost containment efforts have squeezed excess capacity out of the system. Washington hospitals, like hospitals nationwide, strive to eliminate excess capacity for financial reasons. Washington's comparatively low federal Medicare and Medicaid reimbursement rates, a by-product of the state's historically efficient health care delivery system, have made health care facilities and medical practices increasingly less profitable, as have overhead costs associated with meeting administrative requirements. Practitioners appear to be leaving the state and professional schools are not able to recruit and train enough new professionals to keep up with demand. Severe staffing shortages exist across the state for many health careers.

Part of the reason that state and local public health and health care systems, including emergency medical systems, are underprepared for a major health event is a lack of adequate, stable funding. The United States spends nearly 15 percent of its gross national product on health care, but only a tiny fraction, an estimated 1 percent of total health care expenditures, goes to the public health system. Many public health experts would

consider it a significant victory if 3 percent of health care expenditures consistently went to community-based, preventive public health activities.

Of the money that does go to personal health services, an ever-increasing share is devoted to expensive, high-tech procedures and pharmaceuticals. Disproportionately few dollars go to primary and emergency care—the professionals and facilities that would be among the first responders in a bioterrorist attack or major infectious disease outbreak.

In the wake of recent attacks, the federal government has shown heightened interest in funding public health and health systems, even at the risk of returning to deficit spending during an economic downturn. The administration has requested an emergency appropriation of $1.5 billion for bioterrorism preparedness. Yet less than 10 percent of that would go for state and local health preparedness.

Patrick Libbey, president of National Association of County and City Health Officials and director of the Thurston County Public Health and Social Services Department, has described the kind of essential local programs not funded by the administration proposal.

> **"We must be able to conduct active syndromic surveillance for disease, to do immediate, on-the-scene epidemiological investigations, to develop and test local bioterrorism plans, to coordinate community responses, and to maintain the round-the-clock vigilance and readiness that all our nation's communities expect."**

NACCHO estimates that the public health system needs an initial investment of $835 million at the state and local level for disaster preparedness as well as ongoing funding sufficient to sustain this effort.

In Washington State, the financial picture at the state and local level is not encouraging. Funding for state and local services has been and continues to be jeopardized by a host of factors, including Initiative 601 spending limits, the repeal of the motor vehicle excise tax, an economic downtown, inflation in the cost of government services, growth in the populations eligible for these services, and now, Initiative 747 restrictions on local property tax increases.

On October 9 and 10, 2001, the Washington State Board of Health heard briefings from national experts, state and local public health officials, and hospital personnel about state and local capacity for responding to a health emergency such as a bioterrorism attack. The Board also reviewed briefing materials assembled by staff and heard informally from dozens of attendees at the October 8–10 Washington State Joint Conference on Health. This report represents an additional phase of the Board's response to the current crisis.

The Board has identified, during its meetings and research, several specific programmatic areas where the capacity of the public health systems can and should be improved. In this rapidly evolving national context, the Board offers these specific recommendations for Washington State's emergency preparedness planners.

The primary purpose of this report, however, is to examine, in broad terms, the role and readiness of the public health and health care systems. Based on its hearings and research, the Board makes the following recommendations.

1. State policymakers and planners should embrace an "all hazards," public health-oriented approach and fully integrate the state's public health, EMS, and health systems (including representatives of Tribal health programs) into planning and exercises.
2. The governor and state agencies should continue to work aggressively with the state's congressional delegates to make sure bioterrorism preparedness funds reach the state and local levels where they can be used to build critical public health, EMS, and health care infrastructure sufficient to provide initial response to biologic threats and emergencies.
3. State budget writers should use federal funding for disaster preparedness to expand response capacity at the state and local level—not to offset cuts in state contributions to existing programs.
4. State budget writers should protect funding for state and local public health (including local capacity funds and the I-695 backfill). These funds sustain most of the existing public health capacity that would be mobilized to respond to bioterrorist attacks or other disasters. Diverting funds from existing public health programs to supplement emergency response capabilities will not result in needed improvements and may further erode the ability of local health jurisdictions to effectively respond to an emergency.
5. State budget writers should consider ways to make Department of Health funding more flexible (less categorical funding and fewer provisos) so the department can move funds between programs to respond to emergencies.
6. Efforts to reduce state spending on health insurance and health care purchasing should be tempered by the recognition that we need to increase surge capacity and provide additional resources that might be called on during a health emergency. (This is in addition to the need to ensure ongoing access to health care for all Washington citizens.)
7. State policy makers must address the deficiencies identified in the current emergency response system for bioterrorist threats and identify clear priorities for system enhancement. If priority enhancements cannot be funded through federal programs, the state must consider any and all options to make adequate funds available.
8. Federal and state governments must recognize that their fundamental duty to protect public health includes assurance of adequate supplies of essential vaccines. If private pharmaceutical companies entrusted with this essential task fail, as they have repeatedly, to produce adequate vaccine stocks, governments must look to federalization of vaccine manufacture as a last recourse to assure that current shortages are addressed and future breakdowns in the production are averted.

9. The Board should initiate a review, in partnership with DOH, local health jurisdictions, and other affected parties, of the adequacy of current board rules concerning reporting of notifiable conditions, isolation and quarantine, and the emergency powers of local health officers. The Board should also determine the role it sees for itself in development of state legislation defining emergency health powers.

Adequate preparedness for biologic emergencies cannot be accomplished in weeks or months. It will require sustained efforts over years or decades. Strategies will have to be continuously modified to deal with changing threats. As of the date of this report, Washington State has not sustained a direct bioterrorist attack. We do not know how much time is available to us to prepare for such an event. Responsible public health policy development requires that we heed the warning issued by the Gilmore Commission regarding the inevitability of such attacks.

Should Washington State be so fortunate as to avoid a devastating attack, the investment in restored public health capacity will repay itself many times over in improved control of other deadly communicable diseases. If Washington State should become the next target of a bioterrorist attack, the costs of failing to make this investment will be measured in casualties, catastrophic economic disruption, and the potential for unprecedented panic and social unrest.

The State Board of Health urges all elected officials and state agencies to recognize the seriousness of this threat, the urgency of building adequate response capability, and the need for bipartisan cooperation and multi-agency collaboration to rise to this challenge. The citizens of Washington State have put their trust in their institutions of government to provide essential public health and safety services. To fail to meet the challenge of bioterrorism preparedness would truly be a betrayal of trust.

Introduction

On October 9 and 10, 2001, the Washington State Board of Health heard briefings from national experts, state and local public health officials, and hospital personnel about state and local capacity for responding to a health emergency such as a bioterrorism attack. The Board also reviewed briefing materials assembled by staff and heard informally from dozens of attendees at the October 8–10 Washington State Joint Conference on Health.

Board members concluded that the global, national, state, and local public health and health care infrastructure is underprepared to respond to a major health disaster such as a bioterrorism attack. Furthermore, it was the sense of the Board that current possible threats to public health add a heightened sense of immediacy and urgency to our efforts to strengthen the public health infrastructure. Possible threats include those posed by terrorists using weapons of mass destruction and by the increased possibility of new, re-emerging, or drug-resistant diseases entering our state because of our ever-growing international connectedness.

The Board recognizes the outstanding work the state and local health jurisdictions have already done to mobilize existing resources for emergency preparedness response, and in particular it honors the leadership that Mary Selecky, secretary of the Washington State Department of Health, and others are providing in this arena at both the state and national levels.

The Board, nonetheless, has concerns that encompass several interrelated issues. Among them are the alarming trends in public health, emergency medical services (EMS), and health care infrastructure. Although possible threats to public health have been steadily increasing over the past 30 years, the infrastructure necessary to effectively address these threats has been eroded. In the health care sector, efforts to cut costs have eliminated what is sometimes referred to as *excess capacity*, but during times of emergency, so-called excess capacity contributes to *surge capacity*—it gives the health system the ability to care for large numbers of casualties.

This lost response capacity has serious consequences in a major infectious disease outbreak, whether caused by a bioterrorist agent or some naturally occurring epidemic. Essential surveillance and epidemiologic functions, a skilled public health workforce to carry out the complex outbreak control strategies, and health care facilities prepared and equipped to treat the large number of likely casualties are inadequate to respond to anything more than isolated, short-term outbreaks and mass casualty events.

Another of the Board's primary concerns is funding for existing public health programs. The Board is aware that worsening economic conditions will significantly impact state and local government revenues. It is also aware that new federal emergency response funds are likely to become available, but is uncertain whether these funds will be used to build essential state and local capacity or merely increase stockpiles of drugs, equipment, and vaccines.

The Board believes that this is not the time to consider cutting already inadequate public health funding, strengthening emergency response capacity by shifting funds from existing public health programs, or taking "savings" at the state and local level by substituting new federal funding for existing state and local funding of current programs.

Moreover, the Board strongly believes a significant share of new federal disaster preparedness funds must reach the state and local level so that local communities can correct the deficiencies that have been identified in local assessments. This funding must supplement existing resources, not be used merely to replace lost state and local revenues.

In this report, the Board primarily focuses on the need to rebuild public health, EMS, and health care infrastructure. The findings and recommendations in this report are consistent with the Board's statutory authority to develop and recommend state public health policy, and with the scope of the Board's rule making responsibilities (see Appendix A).

The Board recognizes that it is not a central participant in the state's ongoing and highly commendable efforts to develop, test, and refine emergency response plans, and therefore has chosen to focus on broad policy issues rather than try to insert itself into the planning process at a programmatic level. Nonetheless, the Board has become aware, through testimony and research, of specific programs and activities that might strengthen the state's emergency response capabilities—improvements in disease surveillance, education and training of first responders, planning communications and coordination, and improvements in the availability of vaccines and other pharmaceuticals. This report, therefore, does suggest specific programmatic capacity improvements to which disaster planners may want to give further consideration.

The compound threat—bioterrorism and beyond

On December 15, 2000, Virginia Governor James S. Gilmore, III released the second annual report of the "Gilmore Commission"[1] on terrorism response capabilities.[2] His cover letter seemed prescient. "We are impelled by the stark realization that a terrorist attack on some level inside out borders is inevitable," he said, "and the United States must be ready."

The hijackings and suicide attacks of September 11 tragically proved the accuracy of his statement. A week later, a uniquely robust and resourceful computer virus crippled organizations around the county, including the Washington State Department of Health. Around the same time, someone or some group posted letters containing anthrax spores to media outlets and political offices.

[1] The body's full name Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction.
[2] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction. *Second Annual Report to the President and the Congress*, December 15, 2000, cover letter.

The General Accounting Office defines bioterrorism as "the threat or intentional release of biological agents (viruses, bacteria, or their toxins) for the purpose of influencing the conduct of government, or intimidating or coercing a civilian population."[3] This is consistent with the Federal Bureau of Investigation definition of terrorism: "The unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment of it, in furtherance of political or social objectives."

As of this writing, authorities have not established a connection between terrorist organizations and either the anthrax or the computer virus. The criterion of social or political (as opposed to criminal) intent has been met only implicitly. Nonetheless, Tommy Thompson, secretary of Health and Human Services, has called the anthrax exposures bioterrorism, and the computer virus assault is certainly in the nature of a cyberterrorism attack.

The threat of a terrorist attack resulting in mass casualties is no longer theoretical. Neither is the use of biological weapons against civilian populations. This awareness is particularly disturbing considering that experts have little confidence that they can account for all the inventory of the two known stockpiles of smallpox[4] and that large stockpiles (measured in the tons) of other biological agents are known to have been produced by at least 10 different nations.

It also follows from recent events that enemies of the United States might be willing and able to use other weapons of mass destruction that are available to them—including chemical weapons, radiological materials, nuclear weapons and nuclear facilities.

Unfortunately, terrorism is not our only worry. This country and this state also face a serious threat from the *unintentional* spread of disease—new diseases, re-emerging diseases we thought we had controlled, and familiar diseases such as malaria and tuberculosis that are developing resistance to antimicrobial treatments. Consider, for example:

- Our efforts to eradicate malaria have not greatly controlled the spread of the disease. Anti-malaria drugs and chemicals used to control mosquitoes that spread the disease are failing.[5] Global warming will, among other effects, result in the reintroduction of the mosquito vectors for malaria into the southern United States.
- The incidence of tuberculosis in the prisons of some nations that were formerly part of the Soviet Union exceeds 90 percent and a large number of those cases are resistant to all known treatments.[6] Multi-drug resistant TB is likewise on the rise in other areas of the world and will increasingly be spread to the U.S. through international travel and immigration.

[3] United State General Accounting Office. *Bioterrorism: Federal Research and Preparedness Activities*, GAO-01-915, September 2001, p. 1.
[4] Henderson, D.A. "Bioterrorism as a Public Health Threat," *Emerging and Infectious Diseases*, Vol. 4:3, July-September 1998.
[5] Presentation of Laurie Garrett to the Washington State Joint Conference on Health, October 9, 2001.
[6] Ibid.

- In the past decade, there have been numerous large, complex disease outbreaks in the United States. Examples include 400,000 cases of waterborne cryptosporidiosis in 1992 in Milwaukee and 250,000 cases of salmonellosis infection linked to contaminated ice cream in 1994.[7]

When introducing the Frist-Kennedy Public Health Threats and Emergency Act of 2000, Senator Edward Kennedy called new and re-emerging diseases, antibiotic-resistant microbes, and bioterrorism the "Three Horsemen of the Modern Apocalypse." He added:

> **"Today we face a world where deadly contagious diseases that erupt in one part of the world can be transported across the globe with the speed of a jet aircraft. The recent outbreak of West Nile Fever in the New York area is an ominous warning of future dangers. Diseases such as cholera, typhoid and pneumonia that we have fought for generations still claim millions of lives across the world and will pose increasing danger to this country in years to come. New plagues, like Ebola virus, Lassa Fever and others now unknown to science may one day invade our shores."[8]**

The central role of state and local public health

Whether the event is a naturally occurring disease outbreak, a mass trauma event along the lines of the September 11 tragedy, a natural disaster, or the use of weapons of mass destruction by terrorists or conventional militaries, the first response to a health emergency will come from the local and state level.

The Gilmore Commission report notes that local response entities "will always be the 'first response,' and conceivably the only response."[9]

> **"The foundation of the nation's domestic preparedness for terrorism is the network of emergency response capabilities and disaster management systems provided by State and local governments. 'Local' response personnel—community and State law enforcement officers, firefighters, emergency medical technicians, hospital emergency personnel, public health officials, and emergency managers—will be the first responders to virtually any terrorist attack anywhere in the nation. Federal resources may not arrive for many hours—if not days—after the attack."[10]**

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[7] Hughes, James M. "The Emerging Threat of Bioterrorism," *Emerging Infectious Diseases*, Vol. 5:4, July-August 2000.
[8] Kennedy, Edward M. Statement by Senator Edward M. Kennedy on the Introduction of the Frist-Kennedy Bill: Public Health Threats and Emergency Act of 2000, 2000.
[9] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction. Op cit., p. ix.
[10] Ibid. p. viii.

The Gilmore Commission speaks to the importance of a local health care and public health system that could respond to a wide variety of threats, of which bioterrorism is only one. It calls for a dual- and multi-purpose "all-hazards" approach to health security.

> **"Fundamental to our consideration is the premise that the nation must have a robust public health system. But that system, and additional resources required to improve it, should follow the multi-purpose approach that we have previously stressed. Combating terrorism is a compelling reason for such efforts but should not be the exclusive impetus. Strengthening the public health infrastructure to deal with emerging infectious diseases, and a pandemic outbreak of any kind should be the fundamental goal. Such efforts will expand the capacity for decontamination, mass trauma cases, and other surge requirements to deal with mass terrorism incidents."[11]**

Joseph E. McDade of the Centers for Disease Control likewise notes that defense considerations add value to traditional efforts to improving the public health infrastructure. "The measures needed to prevent and control emerging infections are strikingly similar to those needed to check the threat of bioterrorism," he writes. "Improving capabilities and capacities for responding to one issue will almost certainly benefit the other."[12]

Donna E. Shalala, secretary of Health and Human Services during the Clinton administration and now president of the University of Miami, writes that, "Rising to the challenges of our time requires smart investments in an infrastructure that enables hospitals, public-health laboratories, health care professionals and public health experts to constantly monitor our exposures to toxins and infections and that trains them how to respond in concert when threats emerge."[13]

Public health and health care preparedness

How prepared is the public health and health care infrastructure to respond to a bioterrorism attack, a mass casualty event, or a significant disease outbreak? The answer is a matter of perspective.

Global preparedness

From a global perspective, the answer, according to at least one longtime, well-regarded observer, is unavoidable and unequivocal: We are not prepared.

The failures of the global health system are well documented in Garrett's most recent book, *Betrayal of Trust: The Collapse of Global Public Health*.[14] Garrett, a reporter for *Newsday*, won the Pulitzer Prize for her coverage of the Ebola outbreak. She received the

[11] Ibid. p. 32.
[12] McDade, Joseph E. "Addressing the Potential Threat of Bioterrorism—Value Added to an Improved Public Health Infrastructure," *Emerging Infectious Diseases*, 5:14, July-August 1999.
[13] Shalala, Donna E. "Healthy nation, strong nation," *The Miami Herald*, October 10, 2001.
[14] Garrett, Laurie. *Betrayal of Trust: The Collapse of Global Public Health*, New York: Hyperion, 2000.

George C. Polk Award for *Betrayal of Trust*. Her premise is summarized in the jacket copy:

> **"Tens of millions are dying of new, untreatable forms of tuberculosis, malaria, strep, staph, and other organisms. Millions more are dying of AIDS. Measles and other vaccine-preventable diseases still kill hundreds of thousands more children every year. Hospitals have become primary vehicles for the spread of disease, not of their cure. These are not the results of mysterious malicious microbes. They are public health failures. The system we trust to ensure safe water, food, hospitals, and communities can no longer in this globalized world rise to the challenge."[15]**

Other analysts, though perhaps less passionate, have reached similar conclusions.

Federal preparedness

From a national perspective, the view of public health preparedness is less gloomy but not encouraging. Last year, the Centers for Disease Control and Prevention asked itself, in response to a congressional inquiry, "is public health's infrastructure up to the task, prepared for the global health threats of the 21st century?" It concluded, "Unfortunately, the answer is no."[16]

Garrett does not spare the domestic public health and health care systems, either in her book or her public appearances. She includes the domestic public health system when she states, "public health is in a woeful state without bioterrorism."[17] Garrett questions whether the current system could respond adequately to a major influenza epidemic.[18] Indeed, many emergency departments were so overwhelmed by influenza cases in 1999-2000 that they temporarily stopped accepting patients.[19]

A September report to Congress from the U.S. General Accounting Office cited "inadequacies in the public health infrastructure, a lack of hospital participation in training on terrorism and emergency response planning, insufficient capacity for treating mass casualties from a terrorist attack, and the timely availability of medical teams and resources in an emergency."[20]

Dr. Donald Henderson, director of the U.S. Office of Public Health Preparedness, has told the press, "I think it is difficult for me to exaggerate the deficiencies of our present public health capabilities."[21]

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[15] Ibid.
[16] Centers for Disease Control and Prevention. *Public Health's Infrastructure Status Report*, March 2001.
[17] Paulson, Tom. "Bioterror is natural, too, expert says," *Seattle Post-Intelligencer*, October 12, 2001.
[18] Presentation to the Joint Conference on Health, October 9, 2001.
[19] National Association of County and City Health Officials. *Centers for Public Health Preparedness Year One Report*, 2000.
[20] United States General Accounting Office. *Bioterrorism: Federal Research and Preparedness Activities*, September 2001.
[21] Kenen, Joanne. "Bioterror Funds Could Mend US Public Health System," *Reuters*, October 15, 2001.

The Gilmore Commission "found problems at all levels of government and in virtually every functional discipline relevant to combating terrorism."[22]

> **"Debate continues about how prepared the nation is to deal, from a medical and health standpoint, with a terrorist attack involving CBRN [Chemical, Biological, Radiological, Nuclear] devices. In some medical institutions, especially those well funded in major metropolitan areas, there is significant capability to deal with disease outbreaks. The capability is not, however, consistent nationwide. The level of expertise in recognizing and dealing with a terrorist attack involving a chemical or biological agent is even more problematic."[23]**

The Gilmore Commission has pledged to deal comprehensively with the issue of health preparedness in its third report due out December 13, 2001. In preparation for that report, the advisory panel commissioned a national survey. Although the published results were not available when this report was written, people familiar with the survey report that first responders do not feel prepared.[24]

Real world events and training exercises provide practical information about this nation's preparedness for a major health emergency. In 1996, for example, exterminators illegally exposed more than 1,000 people to a chemical similar to a nerve gas agent. Doctors were slow to identify the problem when patients presented with symptoms that included nausea, dizziness, and headaches. The community began to panic before public health professionals instituted a rational response. According to the Pew Environmental Health Commission, the incident, which occurred in Jackson County, Mississippi, illustrates the need for improvements in the national public health system.[25]

Emergency responders reacted well to the September 11 attacks in New York City and Washington, D.C. as well as to the first anthrax reports in Florida. In New York, the emergency medical response was heroic, but post-event analysis has identified areas of concern, including triage procedures, the failure of communications technology, and difficulties managing volunteers. Problems would have been more severe had there been more survivors. "Overall, the response has been rated as excellent," reports *AMNews*, a publication of the American Medical Society. "Still concerns are emerging regarding whether the health care system in the United States is underprepared for an event that would result in hundreds of thousands or even millions of wounded."[26]

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[22] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction. Op cit., p. ii.
[23] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction. Op cit., p. 32.
[24] National Emergency Management Association, Minutes of the Terrorism Committee Meeting, 2001 Annual Conference, September 9-12, 2001.
[25] Pew Environmental Health Commission. *America's Environmental Health Gap: Why the Country Needs a Nationwide Health Tracking System,* September, 2000.
[26] Stagg Elliot, Victoria. "Emergency responders assess how the system worked," *AMNews,* October 22/29, 2001.

Dr. Mohammad Akhter, executive director of the American Public Health Association, has said that Florida public health agencies did a good job of identifying anthrax and responding to the threat, but told Reuters "It varies so much from place to place. Florida worked pretty well, but other parts of the country wouldn't do so well."[27]

The National Association of County and City Health Officials surveyed state and local public health agencies about their own preparedness the weeks after the September 11 tragedy and the anthrax outbreak. NACCHO found, among other things, that 20 percent of health agencies did not have a preparedness plan. It concluded:

> **"Gaps in local public health preparedness were clearly realized in the aftermath of September 11th. Our nation's local public health system is lacking in its preparedness to protect their communities if faced with a biological attack. Bioterrorism preparedness plans, effective communications systems, and reliable and timely information are essential to a prepared public health workforce; yet these pieces are currently incomplete."[28]**

Less than four months before the anthrax attack, on June 22-23, 2001, an exercise involving senior government officials played out the scenario of smallpox outbreak in the United States. The exercise lived up to its name—Dark Winter. The fictional outbreak was identified on December 9, 2002 with 20 cases in Oklahoma and cases suspected in two other states. December 22, 2002 rolled around with 16,000 cases in 25 states, 1,000 deaths, and predictions of 300,000 victims within three weeks, one-third of whom would die. Vaccine supplies were almost gone, food shortages were widespread, and the national economy was in shambles. The exercise broke down with no resolution of the epidemic.

An analysis of the exercise identified several key lessons, including:

- Leaders are unfamiliar with the nature of events that would follow a biological attack.
- Leaders' key decisions would depend on data and expertise from the health care and public health sectors.
- The U.S. health care system does not have sufficient surge capacity to deal with mass casualties.
- Ongoing expert advice from senior public health and health care leaders would be required to end a disease outbreak resulting from a bioterrorist attack.[29]

It is worth noting the primary role played by the public health system and the health care delivery system, as well as the importance of surge capacity. Managed care and related cost-containment strategies by health care corporations, governments, and private

[27] Kenen, Joanne. "Bioterror Funds Could Mend US Public Health System," *Reuters*, October 15, 2001.
[28] National Association of County and City Health Officials. "Assessment of Local Bioterrorism and Emergency Preparedness," *Research Brief*, no. 5, October 2001.
[29] O'Toole, Tara and Thomas Inlesby. *Shining Light on Dark Winter*, Johns Hopkins Center for Civilian Biodefense Studies.

insurers have sought to leverage every identifiable "efficiency" in the health care delivery system. This has resulted in the near elimination of excess capacity—capacity paid for but not utilized on a regular basis. In times of public health emergencies, however, that same excess capacity is seen as essential surge capacity—it gives the system capacity to care for large numbers of casualties.

New Hampshire Office of Emergency Management Director Fogg testified before Congress:

> **"To effectively address chemical and biological events as well as weapons of mass destruction, our medical surge capacity must be strengthened. The emergency management, medical, and public health professions must work with lawmakers on all levels to ensure that each region has a certain minimum surge capacity to deal with mass casualty events."[30]**

A full-scale, $3 million field exercise called TOPOFF (short for "top officials") also identified deficiencies in our nationwide response capability. The May 2000 drill, though considered a success at many levels, reinforced concerns about the lack of surge capacity, inadequate training of providers, difficulties integrating the response of different jurisdictions, and logistical problems distributing medical supplies.[31] For example, responders were able to get "push packs" of medical supplies from the National Pharmaceutical Stockpile to mobilization centers, but the distribution system broke down at that point. Not enough planning had been done about how to break up the packs and deliver pharmaceuticals to the people that needed them.[32]

According to an analysis of TOPOFF by the Johns Hopkins Center for Civilian Biodefense Studies, a release of aerosolized plague bacilli over Denver resulted, five theoretical days later, in the following situation: "Hospitals are understaffed and have insufficient antibiotics, ventilators, and beds to meet demands. They cannot manage the influx of sick patients in the hospitals. Medical care is 'beginning to shut down' in Denver"[33] The authors of the assessment identified problems in the areas of leadership, decision making, resource allocation, the response capability of health care facilities, and current principles of disease containment. They concluded, "The capacities and responsibilities that would be demanded from the medical and public health communities in the event of a bioweapons attack are not commensurate with the resources now available."[34]

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[30] Fogg, Woodbury, Testimony of Woodbury Fogg, Director, Office of Emergency Management, State of New Hampshire, on behalf of National Emergency Management Association, House Government Reform Subcommittee on Government Efficiency, Financial Management, and Intergovernmental Relations, October 5, 2001.
[31] Grossman, Rita and Tom Inglesby, "Senate Hearings on Terrorism & Government Capabilities," *Biodefense Quarterly*, 3:1, June 2001.
[32] Woodbury. Op cit.
[33] Inglesby, Thomas V., Rita Grossman, and Tara O'Toole. "A Plague on Your City: Observations from TOPOFF," *Clinical Infectious Diseases*, 2001: 32, pp. 426-445.
[34] Ibid.

During the two years prior to the September 11 attacks, the U.S. government significantly ramped up federal preparedness. Redoubled efforts have appreciably strengthened the national public health and health care systems. Specific improvements include: the creation and stocking of the National Pharmaceutical Stockpile program (eight 50 ton push packages); establishment of the U.S. Public Health Service Disaster Medical Assistance Teams (60 teams); development of the Metropolitan Medical Response System (70 cities through 2000); upgrading of laboratory capacity; linking of state health offices through the National Laboratory Response Network; and the awarding of funds to states for disaster preparedness assessment and planning.

During the past two years, the federal government has funneled $643 million into enhancing preparedness for bioterrorism and related threats. Another $298 million has gone into bioterrorism research. The Centers for Disease Control and Prevention alone has received $366.8 million.[35]

State and local responders have benefited from this investment but most funds have gone to federal agencies like Health and Human Services and its affiliates, the Centers for Disease Control and Prevention and the National Institutes of Health. Laurie Garrett and others argue that far too little of this new funding has reached state and local levels to strengthen first response capacity. Funds that have made it to the state and local levels are typically categorical and do not allow communities to specifically target their most urgent priorities.[36]

"A disproportionately small amount of the total funds appropriated for combating terrorism is being allocated to provide direct or indirect assistance to State and local response efforts," states the Gilmore Commission. "This level of federal funding for non-Federal capabilities is not commensurate with the importance that State and local capabilities will have in any operational response to a major terrorist attack inside our borders."[37]

National efforts to increase preparedness for a bioterrorist attack—including TOPOFF and Dark Winter—have focused renewed attention on serious deficiencies in the U.S. system for production and distribution of essential vaccines. The sole manufacturer of anthrax vaccine (the preferred treatment for recurrent occupational exposures) has ceased distribution due to quality control problems. For the second year in a row, distribution of influenza vaccine is seriously delayed.[38] Increased demand for vaccine by individuals hoping to prevent symptoms indistinguishable from early inhalational anthrax may compete for this limited supply with the aged and chronically ill who face the risk of increased mortality should they contract influenza. Despite compelling evidence that the Soviet Union has stockpiled large amounts of weaponized smallpox, no smallpox vaccine

[35] Gearon, Christopher, "US Strives to Strengthen Bioterrorism Defense," *Reuters*, October 5, 2001.
[36] Garrett, Laurie, Presentation to the Joint Conference on Health, October 10, 2001.
[37] Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, p. viii.
[38] Blake, Judith. "Flu vaccine may be delayed, but supply should be adequate," *Seattle Times*, Nov. 1, 2001.

has been produced in the U.S. in more than 20 years. Stored supplies are inadequate to treat anything more than a small outbreak. It is uncertain how long a crash program of smallpox vaccine production will take. Three other essential vaccines, adult diphtheria/tetanus (DT), pediatric diphtheria, tetanus and pertussis (DTaP), and the new pediatric pneumococcal conjugate vaccine (PCV7)[39] are currently in short supply and being rationed only to the highest risk individuals.

The Gilmore Commission, in advance of its third report, has recommended that the federal government create a national facility to research and produce vaccines against potential biological weapons.[40]

State preparedness

The state of Washington is regarded as having a high-performing network of state, academic, and local public health agencies. When it comes to preparing for bioterrorism and other major disease outbreaks, Washington is ahead of most other states. Washington State, however, is part of the national infrastructure and shares both its strengths and its weaknesses.

Washington has been widely recognized for the level of collegiality and collaboration between different elements of its network of public health agencies. Its public health standards, a product of the Public Health Improvement Partnership, are considered a national model. The state and local response to an *E. coli* outbreak linked to contaminated meat at Jack-in-the-Box restaurants has likewise been used as a national model for response to a foodborne disease outbreak.

Washington has been proactive in planning for bioterrorism and other disasters that require a major public health and health care response:

- Washington has focused on developing a state-of-the-art public health laboratory, leveraging federal funds and protecting core laboratory capabilities from cuts in state general funds over the last three biennia. The State Public Health Laboratories can perform tests for all biological agents except smallpox and are developing new methodologies for testing clinical and environmental samples.
- Video conferencing capability and a satellite downlink system provide distance learning training modules across the Washington Public Health Training Network.
- Metropolitan Medical Response System facilities are in place in Seattle and neighboring Portland, Oregon, and under development in Tacoma and Spokane.
- The Department of Health and health agencies for the Seattle and Spokane areas have developed the Washington Epidemiology and Surveillance Response Plan.
- The state and King and Spokane counties have hired bioterrorism coordinators that work as a team and provide services to other jurisdictions.
- The Health Alert Network provides a statewide Internet-based mechanism for communication and data exchange between state, local, and federal authorities during bioterrorism attacks and similar events. Ten of the largest counties are now

[39] Dunnewind, Sephanie. "New infant vaccine in short supply," *Seattle Times*, Nov. 3, 2001.
[40] Pianin, Eric. "Panel proposes U.S. government make vaccines," *Seattle Times*, Nov. 5, 2001.

equipped with a mechanism for secure information exchange and the remaining counties are targeted to have this capability by 2004.

- The governor has designated the Emergency Management Division of the Military Department as the primary contact point for federal authorities on state preparedness and established a Committee on Terrorism.
- Cities and counties in Washington, compared to those in other states, have held "surprisingly" more exercises focusing on terrorist attacks (although before September they focused on chemical or explosive attacks, not biological attacks).[41]

In 2000, the Washington Department of Health, as part of a joint Department of Justice and CDC nationwide effort, conducted a Public Health Emergency Preparedness Assessment. It asked the 39 counties to answer a series of questions base on the Draft Public Health Emergency Standards. "In general," DOH concluded, "Washington's local public health systems are not adequately prepared for a major biological emergency."[42]

The department found several areas of "higher-level preparedness," including laboratory capacity, local emergency management capacity, and systems for alerting local public health systems to emergency health events. It also found areas of "lower-level preparedness," including epidemiologic capacity, communicating urgent messages to the public, and the "ability of local public health agencies to effectively manage biological events in concert with local emergency management agencies." There were also insufficiencies in the training of public health staff and in local laboratory capacity.

Every county has a preparedness plan, but only 12 have protocols for mass isolation in a health facility and only seven had a protocol for mass distribution and administration of vaccines and medicines. In only a few counties did area hospitals have self-contained breathing apparatus (six of 39) or supplied air respirators (nine of 39).[43]

A survey of emergency departments at all hospitals in federal Region X—which includes Washington along with Oregon, Idaho, and Alaska—attempted to assess whether hospitals are prepared to respond to chemical or biological attacks. Less than 20 percent had response plans in place and only 6 percent had enough physical resources to respond to a theoretical attack using the nerve gas Sarin. Slightly less than half had an isolated decontamination unit, while only 12 percent had supplied air-line respirators or self-contained breathing apparatuses. The researchers concluded that emergency departments are generally not prepared to respond to an attack using biological or chemical weapons.

"A clear need exists for the planners of the Domestic Preparedness Program to confront the large deficiencies in local preparedness and the possible ineffectiveness of a program that is critically dependent

[41] Wilson, Duff, Warren King and Luke Timmerman. "Bioterrorism is a real threat; are we ready," *Seattle Times*, October 7, 2001.
[42] Wicklund, Julie and Greg Smith, "Public Health Emergency Preparedness Assessment," Washington State Department of Health, PowerPoint presentation.
[43] Ibid.

> **on such preparedness. A need also exists for expanded public discussion of the feasible options for national and local preparedness—including projected costs and probability of effectiveness—and funding mechanisms that do not compromise financial support for other important health care and public health efforts."[44]**

Speaking before the Board, local health officers have echoed the conclusion that the state's local public health jurisdictions and health care delivery systems are underprepared. Dr. Larry Jecha, health officer for the Benton-Franklin Health District, testifying as a representative of the Washington Association of Local Public Health Officials, told the Board on October 9 that he thought local public health systems could respond to a single, short-term biological event, but not to multiple events or to a sustained event.

As Board Member Dr. Thomas Locke, health officer for Jefferson and Clallam counties, put it during the same meeting: "We are not unprepared, but we are decidedly underprepared. I don't think we are as ready as the public would like us to be."

One area of particular concern in Washington State is the surge capacity of the health care delivery system. Historically, Washington has had a highly efficient health care delivery system with little excess capacity during times of normal utilization. In recent years, cost containment efforts have squeezed capacity out of the system. Washington hospitals, like all hospitals nationwide, strive to eliminate excess capacity for financial reasons. Washington's comparatively low federal Medicare and Medicaid reimbursement rates, a by-product of the state's historically efficient health care delivery system, have made health care facilities and medical practices increasing less profitable, as have overhead costs associated with meeting the administrative requirements of state and local health plans. Practitioners appear to be leaving the state and professional schools are not able to recruit and train enough new professionals to keep up with demand. Severe staffing shortages exist across the state for many health careers.

According to an October 2001 report from the Washington State Hospital Association, "During the past year, 55 percent of hospitals in Washington state went on 'divert status' due to a shortage of registered nursing staff." Staffing levels are so low that hospitals are postponing or delaying elective surgeries. The number of hospital beds available in the Puget Sound area has dropped by 10 percent in the last decade.[45] The University of Washington School of Medicine does not have enough slots to replace physicians in the state who are retiring. In 2000, the University's School of Public Health was forced to close its Preventive Medicine Residency program due to lack of funding. With this closure, the only academic program for a six-state region capable of training the next generation of public health physicians has been lost.

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[44] Wetter, Donald Clark, William Edward Daniell and Charles David Treser, "Hospital Preparedness for Victims of Chemical or Biological Terrorism," *American Journal of Public Health*, 91:5, May 2001.
[45] Washington State Hospital Association and Association of Washington Public Hospital Districts. *Who Will Care for You? Washington Hospitals Face a Personnel Crisis*, October 2001.

All of these factors contribute to a lack of surge capacity across the state. Indeed, many areas, notably rural areas and urban areas with high proportions of poor people and people of color, are currently underserved. They lack sufficient facilities and practitioners to provide adequate access to care even during normal times.

The funding picture: Emerging state and local crises

Part of the reason that state and local public health and health care systems are underprepared for a major health event is a lack of adequate, stable funding. The United States spends nearly 15 percent of its gross national product on health care, but only a tiny fraction, an estimated 1 percent[46] of total health care expenditures, goes to the public health system. Many public health experts would consider it a significant victory if 3 percent of health care expenditures consistently went to community-based, preventive public health activities. Of the money that does go to personal health services, an ever-increasing share is devoted to expensive, high-tech procedures and pharmaceuticals. Disproportionately few dollars go to primary and emergency care—the professionals and facilities that would be among the first responders in a bioterrorist attack or major infectious disease outbreak.[47]

A National Association of County and City Health Officers report on public health infrastructure found that local public health agencies "cited funding issues as one of the biggest challenges facing their agencies."[48]

In the wake of recent attacks, the federal government has shown greatly heightened interest in funding public health and health care systems, even at the risk of returning to deficit spending during an economic downturn. The administration has requested an emergency appropriation of $1.5 billion for bioterrorism preparedness. Yet less than 10 percent of that would go for state and local health preparedness. NACCHO Executive Director Thomas L. Milne issued the following response to the administration proposal:

> **"The proposal overlooks absolutely fundamental expenditures necessary to enhance the preparedness of our nation's communities…. Less than 10 percent of the total budget request addresses local and state public health capacity, yet this is where the first response to suspected disease outbreaks occurs."[49]**

Patrick Libbey, president of NACCHO and director of the Thurston County Public Health and Social Services Department, described to Homeland Security Director Tom

[46] Centers for Disease Control and Prevention. "Estimated Expenditures for Essential Public Health Services," *Morbidity and Mortality Weekly Report*, 46: 07;150-152, February 21, 1997.
[47] The Board recognizes that there are many local first responders in any emergency, including any health emergency. First responders also include firefighters, police, emergency medical technicians, and others.
[48] National Association of County and City Health Officials. *Public Health Agency Infrastructure: A Chartbook*, October 18, 2001.
[49] National Association of County and City Health Officials. NACCHO Statement to the Press Regarding the Administration's Bioterrorism Emergency Funding Request, October 18, 2001.

Ridge the kind of essential local programs that are not funded by the administration proposal.

> **"We must be able to conduct active syndromic surveillance for disease, to do immediate, on-the-scene epidemiological investigations, to develop and test local bioterrorism plans, to coordinate community responses, and to maintain the round-the-clock vigilance and readiness that all our nation's communities expect."[50]**

NACCHO estimates that the public health system needs an initial investment of $835 million at the state and local level for disaster preparedness as well as ongoing funding sufficient to sustain this effort.[51]

On October 9, the House Appropriations Committee provided another sign of things to come when it voted to provide $4.1 billion to the CDC, an increase of $200 million over the 2001 appropriation and $380 million over the amount requested in the administration budget. Of that, $20 million would seed a nationwide health tracking system that would enable communities to do a better job of monitoring diseases rates, environmental exposures, and indicators of possible biological and chemical attacks. The committee allocated only $20 million to fund the Frist-Kennedy Public Health Threats and Emergencies Act, which called for fiscal year 2001 spending of $534 million.[52] Congress enacted the legislation last year but made no appropriation.

In Washington State, the financial picture at the state and local level is not encouraging. Funding for state and local services continues to be jeopardized in the aftermath of the 1999 passage of Initiative 695. Though the courts struck down the initiative as unconstitutional, the state government repealed the motor vehicle excise tax, a major source of state and local funds, as called for by the initiative. The state covered 90 cents on the dollar of local government's losses in the second half of the 1999-2001 biennium (the tax repeal took effect in January 2000). For public health, the 90 percent backfill was about $26 million—local health jurisdictions lost close to $3 million. The Legislature continued this partial funding for the 2001-2003 biennium and included an escalator clause. Elimination of this "backfill"—which amounts to nearly $100 million for all state and local services— for the second half of the current biennium is under consideration as state revenues plummet.[53]

Recent years have witnessed a downsizing of government spending, in part because of Initiative 601 limits. During the early years of the Locke administration, many cuts resulted from administrative efficiencies and did not directly affect programs' levels of

[50] Patrick Libbey. Remarks at meeting with the National Association of Counties Homeland Security Task Force, Oct. 26, 2001.
[51] Ibid.
[52] As enacted, the legislation called for $4 million to HHS to define capacities for state and local health agencies; $45 million in grants to states for them to assess public health capacities; $50 million in grants to states to improve state and local health agencies; $180 million to revitalize the CDC; $40 million to respond to antimicrobial resistance,; and $215 million for bioterrorism response.
[53] Shannon, Brad and Patrick Condon. "Agencies propose cuts," *The Olympian*, Nov. 1, 2001.

service. Recently, though, there have been more direct program cuts. The aggregate DOH budget has actually increased during this period, largely because of increased spending on vaccines and the department's success at pursuing federal funds.

The 2001-03 budget made significant cuts in most agency budgets. The DOH budget actually increased, largely because the Legislature provided funds to add pneumococcal conjugate vaccine to the list of state-purchased vaccines (part of a $14 million enhancement for children's health). Excluding the additional vaccine funds, however, reductions to the Department of Health funding from the state general fund were on the order of 6 percent. One of the cuts was the elimination of nearly $1 million from the emergency medical services budget, which reduced, among other things, levels of training and the ability to participate in emergency planning.

There have also been cuts in state funded "local capacity development funds." Beginning in 1994, local health districts received LCDF payments through the state Department of Health as a "down payment" on the Public Health Improvement Plan passed into law in 1995. The Legislature cut LCDF funding by $500,000 for the 1997-99 biennium (from $16,916,000 to $16,416,000). Local health jurisdictions lost another $700,000 in LCDF funding for 2001-03.[54] Increased support for essential public health system improvements envisioned by the 1995 legislation never materialized.

In 2000, the Department of Health surveyed state and local health programs[55] and found, "State and local public health agencies have substantial resource needs." It also noted, "Funding drives the ability to conduct specific programs. Agencies with larger budgets and staff are able to comply with the standards, particularly in the area of assessment. Small agencies may be particularly stressed in meeting the standards."[56]

In September 2001, the state Office of Financial Management received an updated economic forecast that reflected the nationwide economic downturn. Although issued after September 11, it did not take into account the economic ramifications of the terrorist attacks, which are expected to be particularly severe in Washington, where Boeing is expected to lay off more than 30,000 workers. As a result of that forecast, the September 11 attacks, and a host of other budget uncertainties, OFM has begun to prepare for total cuts on the order of $1 billion across state agencies. OFM has instructed agencies to examine all their programs and consider eliminating ones that are not central to an agency's core functions.

Some of the cuts will come from agencies, including the Department of Health, that provide funding for public health and health care. DOH receives $132 million biennially from the state general fund. OFM asked the department to submit a plan for a 15 percent

[54] The $700,000 cut from the DOH budget for local capacity development funds actually occurred for the 1999-01 biennium but was offset by money from the Department of Community, Trade and Economic Development. Local health jurisdictions experienced those cuts in 2001-03 when CTED was no longer able to provide these funds.
[55] The survey was part of a field test of key indicators that could be used to determine compliance with the Proposed Standards for Public Health in Washington State.
[56] Washington State Department of Health. *2000 Public Health Improvement Plan*, December 2000.

cut—roughly $10 million a year. Cuts proposed by the department would not directly weaken emergency response capabilities, but some, such as cuts to AIDS programs, could conceivably increase the strains on already taxed public health and health care systems and reduce the size of the public health workforce—and hence the number of public health professionals that could be redeployed to respond to a health emergency.

Some local governments across the state are asking local health jurisdictions across the state to do budget cut scenarios. For example, Dennis Klukan, administrator of the Yakima Health District, reports that for 2002 the district is looking at a $1.2 million shortfall in a budget of around $12 million. The county, he says, is "cutting back everything to the bone."[57]

Cuts may be tempered in the wake of the new attacks. For example, Southwest Washington Health District has been asking city councils and county commissions for new funds to increase response capacity. The agency's specific and modest request included two new positions. The board of the local hospital, Southwest Washington Medical Center, stepped forward and agreed to fund the positions on a one-time basis.[58]

Local cuts, however, became more likely with the passage November 6 of Initiative 747, which limits local property tax increases, a major source of local government funding.

Defining a "robust" public health infrastructure

Variations of the phrase "building a robust public health and medical infrastructure" appear often in public pronouncements and journalistic reports. Such frequent repetition begs the question: What does that mean? It may be possible to define what such an infrastructure would look like—an adequate one, if not a robust one—using standards currently under development.

The Public Health Improvement Partnership has been working for several years to develop a set of standards for public health in Washington. The PHIP Standards for Public Health contain several standards specifically relevant to disaster preparedness and response. Under the category of "Standards for Communicable Diseases and Other Health Risks" are standards addressing:

- Surveillance and reporting to identify emerging health threats
- Response plans that delineate roles and responsibilities in the event of communicable disease outbreaks and other health risks
- Communicable disease investigation and control procedures
- Communicating urgent public health messages
- Continuous assessment and improvement of responses to disease outbreaks and other health risks

The category "Standards for Assuring a Safe and Healthy Environment for People" includes standards for:

[57] Klukan, Dennis, testimony before the Washington State Board of Health, October 10, 2001.
[58] Kay Koontz, electronic mail correspondence, Oct. 31, 2001.

- Response to the environmental events or natural disasters that threaten the public's health
- Tracking, recording, and reporting environmental health risks and illnesses

In addition to working with the Department of Justice Domestic Preparedness Program on the Draft Public Health Emergency Standards, the CDC Public Health Practice Program Office has been developing a set of national performance standards for state and local public health agencies. Several organizations, led by the National Emergency Management Association and the National Fire Protection Association, are drafting new standards for first responders in terrorism incidents. The Joint Commission on Accreditation of Health Care Organizations is developing preparedness standards for hospitals, and various health care financing organizations and the Office of the Insurance Commissioner have developed "network adequacy" measures to assess whether the availability of health care services is adequate.

The aggregation of these standards may not define a truly "robust" system, but to the degree they are consistent and not in conflict, they provide a reasonable target for which to aim. Assessments have consistently found that current systems do not meet existing standards, so working to comply with them would raise the bar—appreciably increasing levels of preparedness and response capacity.

Suggested programmatic improvements

The primary purpose of this report is to examine, in broad terms, the role and readiness of the public health and health care systems. The Board has identified, during its meetings and research, several specific programmatic areas where the capacity of the public health systems can and should be improved. Federal, state, and local efforts have begun to address these areas, or are planning to address them with all due urgency. In this rapidly evolving national context, the Board offers these findings and specific recommendations for Washington State's emergency preparedness planners.

Syndromic Surveillance

The state and federal governments should explore ways to permanently institute a syndromic surveillance system to detect and rapidly investigate illness clusters and critical clinical syndromes. Organizations such as the National Emergency Management Association and the National Association of County and City Health Officials have recommended institution of syndromic surveillance as a key capacity for bioterrorism response.[59,60] Denver Health has established an active electronic system for syndromic surveillance as part of its bioterrorism work under the Local Centers for Public Health Preparedness.[61]

[59] Fogg. Op cit.
[60] National Association of County and City Health Officials, Letter to President George W. Bush, October 18, 2001.
[61] National Association of County and City Health Officers, *Local Centers for Public Health Preparedness Year Two Report,* August 2001.

A syndromic surveillance system was in place during the Seattle World Trade Organization meetings but was discontinued afterward. The city's bioterrorism preparedness coordinator, Dr. Jeffrey Duchin, chief of the Communicable Disease Control, Epidemiology and Immunization Section for Public Health—Seattle & King County, testified before the Board that restoring the syndromic surveillance is key to the jurisdiction's ability to identify and respond to a biological event.[62]

Education and Training

There is a need to expand and improve training for medical personnel in how to identify and report symptoms of biological weapons exposure, and for public health professionals to rapidly evaluate and respond to potential disease outbreaks. This could be done through a variety of options—including funding continuing medical education training, working with state educational institutions to develop programs, and distributing training across the state network. One option would be to mandate training. This was done in the 1980s when the Legislature required that the Department of Health establish rules for mandatory AIDS/HIV training for all health-care professionals (RCW 70.24.270). Training may need to be ongoing as weapons, tactics, and disease organisms evolve.

The Washington State Hospital Association could provide Harborview Medical Center's emergency preparedness training (including information about surveillance, decontamination, and hospital lockdown procedures) to all Washington hospitals. Likewise, software systems used to monitor hospital bed availability in particular regions could be implemented statewide.

Regional Coordination

Many experts recommend a regional approach to disaster planning that complements and reinforces local, state and federal planning. If regional compacts are not in place, the state should explore a compact similar to the North East States Emergency Consortium. As a border state, it might consider, if it hasn't already, a compact similar to the International Emergency Management Assistance Compact between the New England states and the five eastern provinces of Canada.

Regional Pharmaceutical Stockpile

The state, possibly in cooperation with surrounding states, should provide a backup to the National Pharmaceutical Stockpile by establishing a regional pharmaceutical stockpile that can be easily accessed and distributed. Several experts, including Dr. Jeffrey Duchin in his October 9, 2001 testimony before the Board, have suggested this.[63] NEMA representative Woodbury Fogg testified before Congress:

> **"We must ensure that the medical treatment reaches the patients in the hardest hit areas quickly. I would further suggest that we look to keep multiple stockpiles in regionally centralized locations near transportation assets needed to rapidly move those push packages. There should also be backup stockpiles in several locations around the**

[62] Duchin, Jeffrey, Testimony to the Washington State Board of Health, October 9, 2001.
[63] Ibid.

> **country to bolster the national surge capacity and to enable a flexible response to multiple events."[64]**

Additional Surge Capacity

It is clear, given widely acknowledged access problems during normal times, that the state lacks sufficient surge capacity. This has been confirmed in recent testimony before the Board and through the Board's priority work on access and workforce development. This issue is unlikely to be resolved without new federal resources. As NEMA's Fogg told Congress:

> **"Hospitals should agree to provide defined and standardized levels of resources, capabilities and assistance to handle mass casualties, especially those contaminated by chemical and biological agents. Funding for equipment and supplies to accomplish this mission should be provided to develop this additional capability, in exchange for agreeing to participate as a local receiving hospital and as part of the U.S. Public Health Services National Disaster Medical System.**
>
> **"The incremental costs to the health care system of developing and maintaining mass casualty emergency response capacity are significant. Funding to cover these costs not available from any other sources must be provided by the federal government."[65]**

Despite the call for federal funding, options exist for a state-level policy response. One response would be for the facilities licensing program of the Department of Health to work with stakeholders such as the Washington State Hospital Association and the Joint Commission on Accreditation of Healthcare Organization to develop a system for encouraging hospitals to maintain current and field-tested disaster preparedness plans, increase surge capacity, and maintain defined and standardized levels of resources (e.g., negative pressure isolation rooms) to respond to large-scale communicable disease outbreaks. Options include voluntary standards, accreditation standards, state licensing requirements, and financial incentives.

Efforts are already underway in this state to respond to health care workforce shortages. The foci to date have been on workforce development in rural communities and communities of color. The state should consider significantly expanding these efforts and adding a third explicit focus—disaster response capacity.

The state is actively engaged in multiple efforts to improve value in purchasing of health care services and health care insurance by increasing quality and cutting costs. Cost containment efforts, in particular, could have significant impacts on access and surge capacity. As the state continues these efforts, it should keep in mind the need for surge capacity and consider whether its efforts to leverage efficiencies might eliminate underutilized capacity that is not really excess given current realities.

[64] Fogg. Op. cit.
[65] Ibid.

There are other ways the state can help increase the ability to utilize existing capacity during an emergency. For example, it could support Harborview Medical Center's efforts to expand the Puget Sound Hospital Capacity Web Site by exploring incentives or mandates that would encourage all Washington hospitals and clinics to provide timely information for the site.

Communications
The need for established communications protocols and systems is a recurring theme in assessments of preparedness nationally and in Washington State. During the World Trade Center disaster, electronic communication systems broke down and responders needed to rely on human messengers. One week after that attack, a computer virus knocked out Department of Health Web-based functions. Few local jurisdictions have a plan in place to work with the media to disseminate health information during a crisis. Communications plans should be highly developed, frequently tested, fully inclusive, and not overly reliant on any single type of technology.

Other Possible Infectious Disease Threats
Although national attention is currently focused on preparation for bioterrorist threats, it is important that the other two "horses of the modern apocalypse," re-emerging diseases and antibiotic-resistant microbes, not be ignored as communicable disease control capacity is rebuilt. Many of the same vulnerabilities identified for bioterrorist agents also exist with respect to naturally occurring infectious diseases. Systems developed for biologic disaster response will find everyday use in response to influenza pandemics, the advancing spread of West Nile Virus, TB prevention, and the ongoing sexually transmitted disease epidemic (including HIV). Educational campaigns already underway—such as the AWARE (Alliance Working for Antibiotic Resistance Education) program—need the active participation and ongoing support of a wide range of political and professional leaders. Misuse of antibiotics not only wastes billions of dollars of scarce health care funds but also undermines the effectiveness of these life-saving drugs when they are truly needed.

Possible changes to Board rules

During the October 9 and 10 Board meetings, members heard testimony about the need for syndromic surveillance. Some members asked whether the Board should review the notifiable conditions rule, Chapter 246.101 WAC,[66] to better enable, or even to require syndromic surveillance. Subsequent to that meeting, the Board has heard concerns from some local health officers that their emergency powers, also defined in Chapter 246.101 WAC, as well as in Chapter 246.100 WAC were overly vague. As the Board encourages government agencies at all levels to improve disaster response capacity, it should make sure it has taken any necessary steps to assure its own rules are adequate and current.

The Board has statutory authority over several areas that are relevant during times of health emergencies. 43.20.050 RCW states that the Board shall make rules concerning:

[66] Chapter 246.101 WAC is a joint rule approved by both the Board and the Department of Health.

- The imposition and use of isolation and quarantine
- The prevention and control of noninfectious diseases
- The receipt and conveyance of the remains of deceased persons

Reporting of conditions linked to bioterrorism
In 2000, the Board adopted revised rules regarding notifiable conditions reporting, creating a new section of the Washington Administrative Code, Chapter 246.101 WAC. That section calls for reporting of diseases associated with bioterrorism, specifically including anthrax and smallpox. Likewise, it contains provision for reporting "other rare diseases of public health significance" and "unexplained critical illness or death." Also, 246.101.015 WAC describes a system whereby the state health officer can provisionally add conditions to the list of notifiable conditions.

Syndromic surveillance
DOH reports that it took syndromic surveillance into account when drafting Chapter 246.101WAC. Board staff has not, to date, identified model language or language in place in other jurisdictions that would strengthen Chapter 246.101 WAC to enable syndromic reporting. Centers working on syndromic surveillance, such as Denver Health, report that their work is not yet far enough along to know whether syndromic surveillance will turn out to be a valuable tool. The informatics technology that would enable syndromic surveillance is still under development and there are many outstanding issues (such as, what is the baseline for various syndromes and under what conditions should software trigger an alarm) to resolve before legal mandates would make sense.

There are several policy issues to contemplate if the Board decides to consider rules that would require syndromic reporting. Principle among these is a chicken-and-egg question: whether mandating reporting would be effective without an infrastructure in place to support it. The federal approach has been to expand reporting by improving the technology infrastructure. Related issues include (1) the prospect of imposing unfunded mandates; (2) the current lack of compliance with existing rules and questions about the value of a rule without effective enforcement; and (3) health care institutions' reluctance to participate in any kind of named reporting that might be interpreted as a privacy violation under Health Insurance Portability and Accountability Act of 1996.[67]

Powers of local health officers
Several local health leaders have raised questions about the emergency authority of local public health officials. Chapter 70.05 RCW speaks to powers and duties of local health officials, as does 246-101-505 WAC (which is mirrored in 246.100.036 WAC). Board members and staff have heard from local public health leadership that these provisions may be too vague. Some argue that vague is better since specificity can be limiting. At the same time, lack of clear role definition could prove detrimental if disputes over authority—between police and public health officials, say, or between city or county officials and the operators of a private health care facility—arise in the middle of a crisis.

[67] HIPAA rules crafted by Health and Human Services allows disclosure of information required by law and applicable to certain public health activities, including preventing or controlling disease (§164.512).

One specific area of concern is quarantine and isolation. 43.20.50(d) RCW states the Board shall "adopt rules for the imposition of isolation and quarantine." 246.101.505 WAC gives local health officers or local health departments broad authority to institute "disease prevention and infection control, isolation, detention, and quarantine measures necessary to prevent the spread of communicable disease, invoking the power of the courts to enforce these measures when necessary." There are some vestigial statutes that give cities isolation and quarantine powers. Seattle is currently looking into revising (updating and expanding) its laws in this area.

Quarantine and isolation statutes and Board rules that implement these statutes exist for tuberculosis (Chapter 70.28 RCW and Chapter 246.100 WAC) and HIV/AIDS (Chapter 70.24 RCW and Chapter 246.100 RCW) but not for general outbreaks. These sections could be used to help shape Board rules since that could suggest legislative will (for example, no mandatory treatment) and provide a model for incorporating due process considerations.

Similar issues arise around related questions of authority, such as whether local health officials can commandeer facilities or mandate treatment.

The Center for Law and the Public's Health at Georgetown and Johns Hopkins universities, at the request of the CDC and in cooperation with several national associations, has drafted The Model State Emergency Powers Act. Several states, including Washington, are rapidly assessing the need to adopt legislation modeled on this act. Washington's Emergency Management Act (Chapter 38.52 RCW) does not sufficiently address a public health emergency. For instance, it does not include the secretary of health on the emergency management council.

The Model Act, as drafted, does not immediately meet Washington's needs. Among other things, it does not contemplate a system such as Washington's where the "direction and control in an emergency or disaster is under the authority of local government and health officials."[68] Nonetheless, the Legislature reasonably can be expected to consider legislation during the upcoming session that defines the emergency powers and duties of state and local health officials. Such legislation could address the situation in a way that makes current concerns moot. It could also override new or existing Board rules.

The Model Act could also provide a source of guidance if the Board does decide to pursue rule revisions. For example, Section 503 of the Model Emergency Health Powers Act provides a template that might be used if the Board, in consultation with DOH and local health jurisdictions, decides that it would be sound policy to adopt isolation and quarantine rules.

DOH recently established a short-term workgroup to look at legal issues surrounding emergencies, including bioterrorism. The Board has been asked to participate, along with representatives from local commissions, local health jurisdictions, department personnel

[68] Washington State Department of Health. *Comprehensive Emergency Management Plan*.

and other state agency representatives, and the Attorney General's Office. The initial list of topics that need review or action in light of current events include:

- authority to confine
- mutual aid compacts with the state and local health jurisdictions
- mutual aid compacts among local jurisdictions
- clarification of local health officer and Board of Health authority at the local level in an emergency
- the ability to accept and verify licensed professionals from out of the area
- the application of good Samaritan laws across state boundaries

Findings and recommendations

The Board of Health finds that:

1. Washington State faces potential health threats that include terrorist attacks involving the use of explosive and conventional weapons, the use of biological agents and other weapons of mass destruction, epidemics of new and re-emerging diseases, and the proliferation of disease organisms that are resistant to antimicrobial agents—all of which could result in mass casualty events.
2. State and local public health and health care systems will be first responders in the event of any major disaster or disease outbreak. Without the skill and ability to diagnose and report unusual health events quickly, these first responders may not trigger a state or federal response.
3. State and local health professionals will also be critical to the successful resolution of a major health event such as a bioterrorism attack. They must have the means and authority to treat, and if necessary isolate and decontaminate, affected people and places.
4. The role of state and local public health and health care systems in any disaster response is not fully understood by disaster planners at many levels of government. Representatives of the public health and health care systems have been insufficiently involved in disaster planning.
5. The global public health infrastructure is clearly not adequate to respond to this compound threat—indeed, its weaknesses contribute to it. There are significant inadequacies in the national public health infrastructure. Washington, though ahead of most states, is underprepared in some respects for a major health threat, a sustained outbreak or multiple concurrent events.
6. Creating sufficient capacity to respond to health crises requires the establishment of a robust public health system using an integrated, comprehensive all-hazards approach.
7. The public health systems in this country have been inadequately funded and staffed for many years. Over time this has resulted in a progressive loss of public health system capacity to provide essential services, including communicable disease control.

8. Efforts to contain health-care costs by limiting excess capacity in the health care system, combined with workforce shortages, have greatly reduced the nation's and the state's surge capacity.
9. The federal government is poised to make a significant investment in building capacity to respond to bioterrorist attacks and related events. In the past, however, federal funds for bioterrorism response have not reached the state and local jurisdictions at a level commensurate with their role. There are indications this mistake may be replicated in the new round of funding.
10. Recent state and local budget cuts have resulted in cuts in state and local public health programs. Pending cuts are threatening to further reduce state and local support for the public health infrastructure.
11. There is an immediate need to address serious deficiencies in the U.S. system for production and distribution of essential vaccines.
12. A reasonable question exists as to whether current Board rules are adequate in the context of the existing health threat.

Based on these findings, the Board makes the following recommendations:

1. State policy makers and planners should embrace an "all hazards," public health-oriented approach and fully integrate the state's public health and health care systems (including representatives of Tribal health programs) into planning and exercises.
2. The governor and state agencies should continue to work aggressively with the state's congressional delegates to make sure bioterrorism preparedness funds reach the state and local levels where they can be used to build critical public health and health care infrastructure sufficient to provide initial response to biologic threats and emergencies.
3. State budget writers should use federal funding for disaster preparedness to expand response capacity at the state and local level—not to offset cuts in state contributions to existing programs.
4. State budget writers should protect funding for state and local public health (including local capacity funds and the I-695 backfill). These funds sustain most of the existing public health capacity that would be mobilized to respond to bioterrorist attacks or other disasters. Diverting funds from existing public health programs to supplement emergency response capabilities will not result in needed improvements and may further erode the ability of local health jurisdictions to effectively respond to an emergency.
5. State budget writers should consider ways to make Department of Health funding more flexible (less categorical funding and fewer provisos) so the department can move funds between programs to respond to emergencies.
6. Efforts to reduce state spending on health insurance and health care purchasing should be tempered by the recognition that we need to increase surge capacity and

provide additional resources that might be called on during a health emergency. (This is in addition to the need to ensure ongoing access to health care for all Washington citizens.)

7. State policy makers must address the deficiencies identified in the current emergency response system for bioterrorist threats and identify clear priorities for system enhancement. If priority enhancements cannot be funded through federal programs, the state must consider any and all options to make adequate funds available.
8. Federal and state governments must recognize that their fundamental duty to protect public health includes assurance of adequate supplies of essential vaccines. If private pharmaceutical companies entrusted with this essential task fail, as they have repeatedly, to produce adequate vaccine stocks, governments must look to federalization of vaccine manufacture as a last recourse to assure that current shortages are addressed and future breakdowns in the production are averted.
9. The Board should initiate a review, in partnership with DOH, local health jurisdictions, and other affected parties, of the adequacy of current board rules concerning reporting of notifiable conditions, isolation and quarantine, and the emergency powers of local health officers. The Board should also determine the role it sees for itself in development of state legislation defining emergency health powers.

Conclusion

Adequate preparedness for biologic emergencies cannot be accomplished in weeks or months. It will require sustained efforts over years or decades. Strategies will have to be continuously modified to deal with changing threats. As of the date of this report, Washington State has not sustained a direct bioterrorist attack. We do not know how much time is available to us to prepare for such an event. Responsible public health policy development requires that we heed the warning issued by the Gilmore Commission regarding the inevitability of such attacks.

Should Washington State be so fortunate to avoid a devastating attack, the investment in restored public health capacity will repay itself many times over in improved control of other deadly communicable diseases. If Washington State should become the next target of a bioterrorist attack, costs of failing to make this investment will be measured in casualties, catastrophic economic disruption, and the potential for unprecedented panic and social unrest.

The State Board of Health urges all elected officials and state agencies to recognize the seriousness of this threat, the urgency of building adequate response capability, and the need for bipartisan cooperation and multi-agency collaboration to rise to this challenge. The citizens of Washington State have put their trust in their institutions of government to provide essential public health and safety services. To fail to meet the challenge of bioterrorism preparedness would truly be a “betrayal of trust.”

Appendix A: Board and Department of Health Statutory Authority

The State Constitution established the State Board of Health in 1889. Article XX, Section 1 states, "There shall be established by law a state board of health." The Board's powers and duties include the following:

- Provide a forum for the development of public health policy
- Explore ways to improve the health status of the citizenry.

The Board has specific powers that apply in health emergencies. RCW 43.20.050 (2), for example, states that the Board shall adopt rules for "the imposition and use of isolation and quarantine" and "for the prevention and control of infectious and non-infectious diseases." The Board also makes rules that protect the safety of our food and water supply—both of which could serve vectors for a biological attack.[69]

Further, RCW 43.20.050 (5) says that the Board "may advise the secretary of health on health policy issues pertaining to the department of health and the state."

The essential responsibilities of state government during times of emergency are clearly defined in statute, most notable RCW 38.52. The secretary and the department have responsibility for a variety of services central to the state's ability to respond to health emergencies. They include: [70]

- Emergency assessment of the health system
- Disease prevention and control
- Laboratory capacity
- Epidemiology and surveillance
- Security of information systems
- Policy and evaluation
- Preparedness response and capacity
- Victim identification and mortuary services

The Board held its public briefing on emergency response capacity and prepared this report as part of its duty to serve as a forum for the development of health policy, to explore ways to improve the status of the citizenry, and to advise the secretary of health on health policy issues. An additional purpose was to consider the adequacy of existing rules for the prevention and control of infectious diseases in responding to possible new threats of major disease outbreaks associated with bioterrorist attacks.

[69] The only know bioterrorism attack in the United States prior to this year involved the spreading of salmonella bacteria on restaurant salad bars in The Dalles, Oregon in 1984.
[70] Testimony of Mary Selecky, Secretary of Health, before the State Board of Health, October 9, 2001.